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ABSTRACT

This paper describes a study carried out in Portugal on the effects of three different preschool curricula on children's entry into primary school. These curricula are High Scope, Formal Skills, and Movimento da Escola Moderna. The sample consisted of 223 children followed longitudinally from nursery to primary school. Systematic observations were made in 15 nurseries. The subjects were first assessed when they had just left nursery and then 9 months later. The research was designed to answer the following questions: (1) are there differences in the day-to-day experiences of children and staff in the three nursery curricula; (2) is attendance at different kinds of preschool associated with higher score on literacy and mathematics in grade one compared to children who start school without nursery experience; and (3) is attendance at different kinds of preschool associated with higher scores on perceived competence and social acceptance compared to children who start school without nursery experience? The results showed that attendance in the High Scope program was associated with higher scores on curricular outcomes of reading and writing. Social acceptance was lower in the Formal Skills group. Early Childhood Environment Rating Scale (ECERS) scores were very similar for the High Scope and Movimento da Escola Moderna groups although both these curricula differed significantly on ECERS from the Formal Skills. Detailed observations showed that children and staff in the three preschool curricula engaged in different classroom activities. Children in the High Scope nurseries spent more time in pretend play, stories, rhymes, songs, informal conversation and problem solving. All these activities may explain their greater progress in reading and writing when they entered school. (Author/MOK)

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Comparisons between ECERS ratings of individual pre-school centres and the results of Target Child Observations: do they match or do they differ?

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ABSTRACT

This paper describes a study carried out in Portugal on the effects of three different pre-school curricula -The High Scope, Formal Skills and Movimento da Escola Moderna - on children's entry into primary school. The sample consisted of 223 children followed longitudinally from nursery to primary school. The research questions were: (1) - Are there differences in the day-to-day experiences of children and staff in the three nursery curricula? (2) - Is attendance at different kinds of pre-school associated with higher scores on literacy and mathematics in grade one compared to children who start school without nursery experience? (3) - Is attendance at different kinds of pre-school associated with higher scores on perceived competence and social acceptance compared to children who start school without nursery experience? The results showed that attendance in the High/Scope programme was associated with higher scores on curricular outcomes of reading and writing. Social acceptance was lower in the Formal Skills group. Thus, the type of pre-school curriculum had a differential impact on children's learning and self perception in primary school.

Might differences in the three pre-school curricula lead to differences in children's later learning at school? ECERS scores were very similar for the High/Scope and Movimento da Escola Moderna groups although both these curricula differed significantly on ECERS from the Formal Skills. Detailed observations showed that children and staff in the three pre-school curricula engaged in different classroom activities. Children in the High/Scope nurseries spent more time in pretend play, stories/rhymes/songs, informal conversation and problem solving - all activities which may explain their greater progress in reading and writing when they entered school.

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1 - INTRODUCTION

The aims of this research were:

1 To study the effects on children's learning during the first year of primary education of attendance at three early childhood curricula implemented in Portugal.

2 To show which characteristics of the three pre-school curricula are related to children's progress when they start school.

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3 To compare the use of The Early childhood Environment Rating Scale (ECERS) and systematic observation (Target Child) as 'process variables' in explaining children's learning outcomes.

2 - METHOD

Sample

Table 1 shows that 180 children were observed in nurseries, 60 from each curriculum in fifteen pre-school centres, five of each type. During the first year of Primary school 111 children were followed longitudinally from the nurseries and the progress of these children was compared to 112 matched control children entering school without nursery experience. Table 2 shows that half of the sample were children coming from home without nursery experience and the other half from the three nursery curricula. This research design controls for the effect of primary school while investigating the impact of different nursery curricula.

Measuring Child Outcomes

The children were assessed twice; the first assessment took place when they had just left nursery and the second took place 9 months latter. The tests used to measure the effect of each curriculum were:

For ***reading*** the following tests were given individually to all children:

- Letter identification - alphabet in 'lower case' and 'upper case'
- Word reading 10 common words
- The 'Haunt reading test' from Durviaux, M. M. Fernand & Jean Simon adapted by l'Équipe Universitaire de Recherches en Education et Didactique de La Université Toulouse-Le-Mirail and normalised into Portuguese language by Instituto Superior de Psicologia Aplicada de Lisboa.

For ***writing*** the following tasks were given individually to all children:

- Child writes own name
- 'Write a message for your father'

For ***Mathematics*** the following tasks were given individually:

- 'Knowledge of the Numeration System Among Pre-schoolers' (from Nunes & Schliemann, 1990)
- 'The Development of Addition and Subtraction Problem-Solving Skills' (adaptation task from Carpenter & Moser, 1982)
- 'Paper and pencil ' task with addition and subtraction made from school exercise books

Social development was assessed by:

- 'The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children first and second grade' (Susan Harter, 1983)

Observations and ratings in the nurseries

Systematic observations were made in 15 nurseries in order to describe differences in day-to-day experiences of children and the teachers. The method used was a modification of the Target Child Method of Observation (Sylva, K., Roy & Painter, 1980) and Target child / Staff observation. (Sylva, Smith & Moore, 1986). Each child was observed for 20 minutes in nursery using time-sampling while playing with peers and interacting with adults. The focal children was coded every 30 seconds. Within the 30 seconds interval, some behaviours were event-sampled such as teacher's interventions in children's play.

Intervals were coded for play activities, social interaction with peers and staff, adult role and also amount of child choice. Inter-observer reliability between three observers was obtained by Kappa: Reliability for choice was between .94 and .98; for social interaction between .88 and.89; for adult style between .86 and .95; for curriculum activities between .86 and .95.

The Early Childhood Environment Rating Scale (ECERS) was also applied. Satisfactory inter-observer reliability was achieved via Spearman rank order correlations, significant at $p<.001$.

3 - RESULTS: Child outcomes in primary school

The data were analysed by a hierarchical multiple-regression model. This analysis made it possible to control for pre-test scores and demographic details while examining the extent to which children's cognitive and social development was affected by variation in nursery curriculum. Figure 1 presents the results of the regression analysis for the three

curricula on a composite measure of all three reading tests. Figure 2 represents the effect of curriculum on writing scores, also a composite measure. Figure 3 presents the effects of the three curricula on children's social acceptance and perceived competence (Harter scale). All outcomes are reported as effect size. High/Scope children scored higher than their control children on reading and writing but not on maths. On the Harter test, Formal Skills children had significantly lower scores on social acceptance compared with control children. There were no differences on maths scores for any curriculum group.

4 - RESULTS: Observed differences in daily experiences of children in 3 curricula

The pre-school observations were used to answer the following question: Is there a relationship between children's nursery experience and their subsequent progress in school learning? The nursery observation data were analysed by Kruskal-Wallis tests. Figures 4 - 12 present bar graphs showing differences between the three curricula in systematic observations. It is clear that High Scope children spent more time experiencing stories, rhymes and songs led by adults. Also they spent more time in pretend play and informal conversations with peers. They were engaged more in small scale construction and spent more time in examination and problem solving.

Figure 13 shows differences in the three curricula in the amount of choice offered to children during the day. High/Scope children had a great deal of choice but it was a balance between free and guided choice. Children in the Formal Skills programme had very little choice. Children in the Movimento da Escola Moderna programme spent the vast majority of their time in free choice.

Figure 14 shows the various social interactional settings which children experienced. Here it can be seen that children in the Movimento da Escola Moderna curriculum spent the most time either playing alone or in pairs. All three curricula fostered small group work but Formal Skills and High/Scope brought the children together more frequently to work as a class or a large group.

Figure 15 presents the findings on the role of the adults. Children were playing independently from adults (adult 'away') more in the Movimento da Escola Moderna and the High/Scope programmes. The adult was 'caring' most in the Movimento da Escola Moderna programme and 'instructing' the most in the Formal Skills. The adult was observed to 'extend' the child's play (the most sophisticated of the adult codes) most often in the High Scope and the Movimento da Escola Moderna programmes.

5 - RESULTS: ECERS rating scale

Figure 16 shows the ECERS scores for the three curricula (five schools in each group). Although Formal Skills schools had significantly lower scores on all ECERS subscales, there were no significant differences (Kruskal-Wallis) between the High/Scope and Movimento da Escola Moderna schools on any of the ECERS subscales.

6 - CONCLUSION

This study has shown first that children in the High Scope curriculum made better academic progress at school in reading and writing than their peers in either the Movimento da Escola Moderna or Formal Skills. Conversely children in the Formal Skills programme responded to the pressures of school entry with lower social acceptance scores over their first year. What were the daily experiences of children in their nursery programmes which could provide the foundation for more effective learning in primary school?

1 ACTIVITIES. The superiority in reading and writing tests shown by High Scope children was probably related to their greater involvement in literacy-cultural activities in the nursery. Recall that they spent more time in pretending, informal conversation in pairs or small groups, and being guided by adults in stories, rhymes and songs. Thus they enjoyed a 'literacy/fantasy' curriculum. Also they showed more examination and problem-solving in nursery which may have helped them become more active learners. (Table 3 provides a quick summary).

2 CHOICE. Children in the High Scope curriculum had a balance of free and guided choice. Children in the Formal Skills curriculum had very little choice throughout the day whereas those in the Movimento da Escola Moderna had almost unlimited choice of activity and apparatus.

3 SOCIAL SETTINGS. It has been shown that children in the Movimento da Escola Moderna group had the least structure provided by adults or by the daily routine. Not only did they have the most free choice, they also spent the most time playing either alone or in child pairs. Because these children were rarely required to get together in groups, individuals chose different activities and carried them out individually or with just one friend. By way of contrast, the Formal Skills and High/Scope children spent more time in adult-led groups. However, in Formal Skills these large groups engaged in school-like activities while in High Scope children participated more in stories , rhyme and songs led by adults.

4 ADULT STYLE. Here it is easily seen that children were most under the control of teachers in Formal Skills, where teachers instructed them. In Movimento da Escola Moderna the adult was more caring and helping. Adults were observed to extend children's activities equally in High/ Scope and Movimento da Escola Moderna programmes. Note that this Vygotsky-like scaffolding was rarely seen in the more formal Formal Skills programme.

Four outcomes have been presented: reading and writing in which High Scope children showed superiority, maths were there were no differences according to curriculum, and perceived acceptance in which the Formal Skills children scored lower than their controls. From this robust study a sample of 223 children coming from 15 pre-schools (and controlling for the effects of the primary school), it was found that the High Scope programme had a beneficial effect on two of the three educational outcomes. This curriculum has a balance between choice and guidance, between 'cultural' play and problem solving, and between playing in small groups and sharing with others in the whole class. This balance may explain its capacity to give children a 'good start' in primary school.

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Table 1 **Nursery Sample**

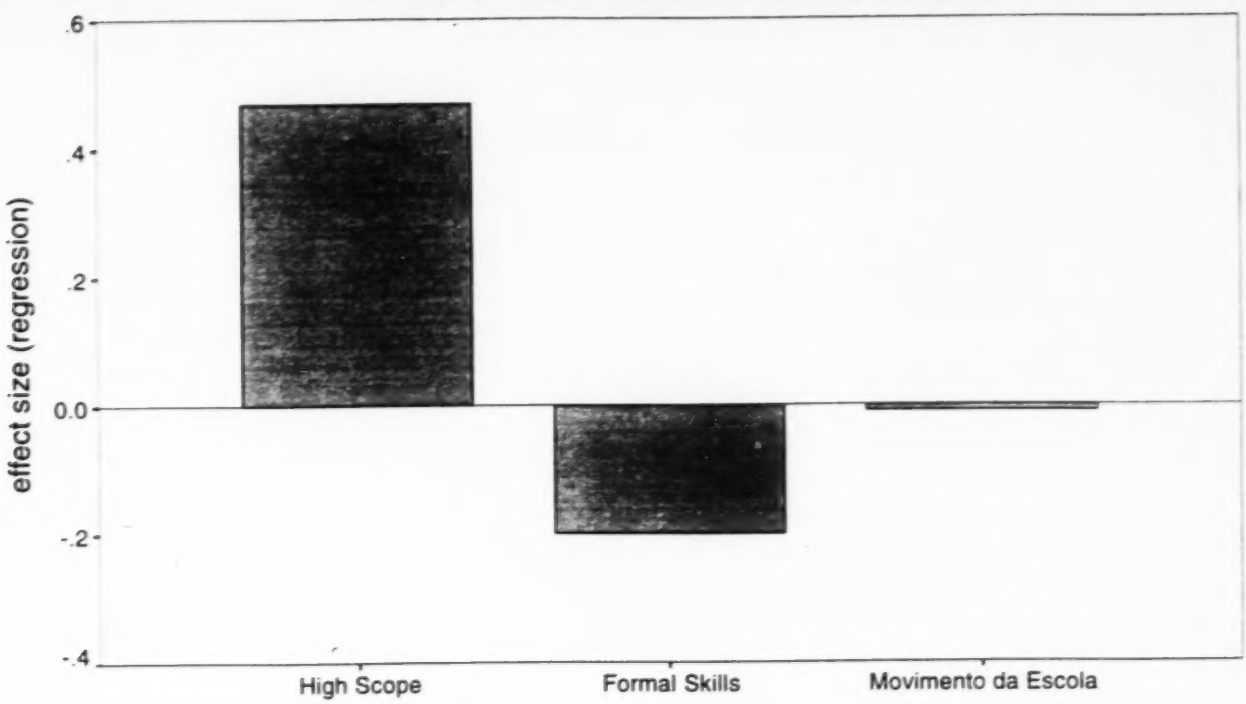
	N children
High/Scope (5 Schools)	60
Formal Skills (5 Schools)	60
MEM (5 Schools)	60
Total	180

Table 2 **Primary Sample**

	N children
High/Scope Control	36 37
Formal Skills Control	39 37
Movimento da Escola Moderna Control	36 38
Total N	223 (in 13 schools)

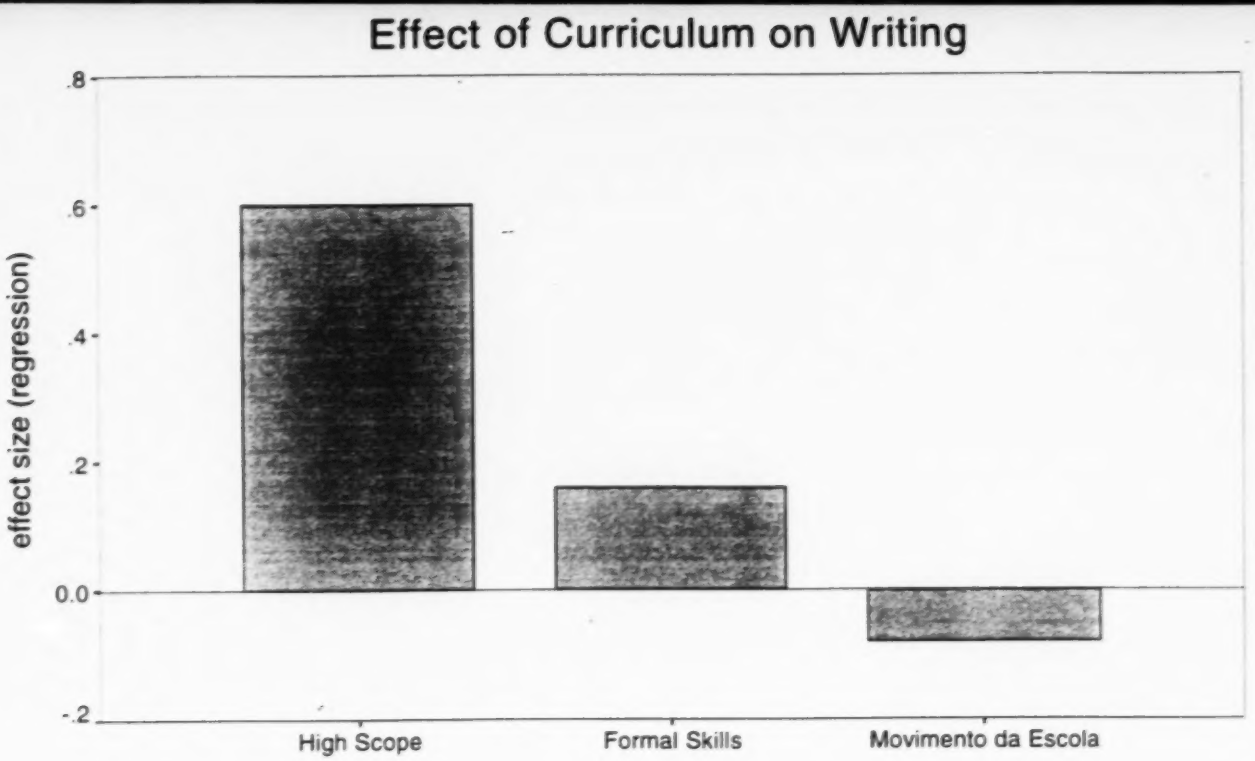
Table 3 **Children's Activities by Curriculum**

Pretend	.001	HS highest
Art	.001	MEM + HS highest
Music	ns	
Manipulation	.001	MEM highest
Small scale construction	.02	HS highest
Gross motor play and large scale construction	ns	
Games	ns	
Informal conversation	.03	HS highest
Examination and problem solving	.07	HS highest
Adult leads story/rhyme/song	.006	HS highest
Adult leads play/dance/body movement	.03	FS highest
Adult leads art	ns	
Adult leads school subjects (reading, writing, maths, science)	.001	FS highest
Plan and review	.001	MEM +HS highest
Adult directs activities while children are passive	ns	
School subjects (reading, writing, maths, science)	.001	FS highest
Moving and cruising	.001	HS + MEM highest
Watching	.009	FS highest
Distress/disturbance	.01	FS highest
Individual physical needs	ns	
Domestic activities	ns	
Waiting	ns	
Standing/aimless gaze	ns	



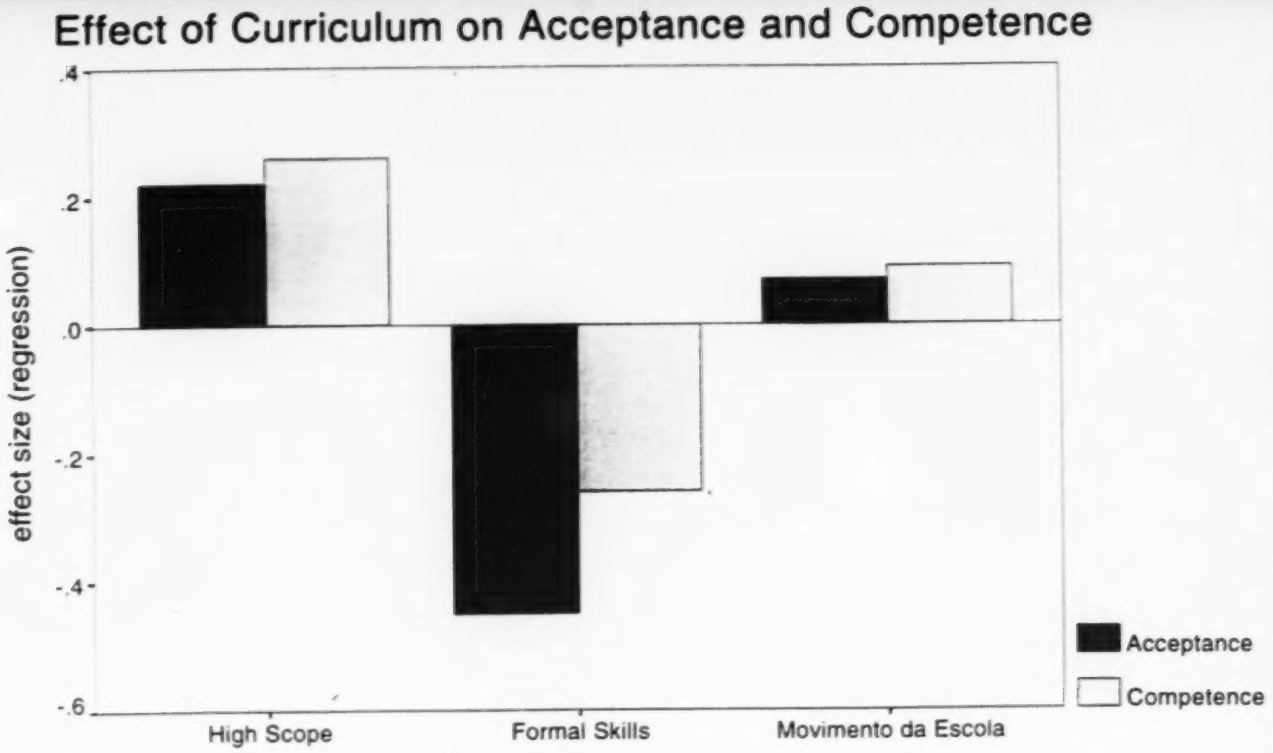
	R^2	β	p
HS	.55	.20	.02
FS	.44	- .15	.19
MEM	.47	.04	.65

Figure 1



	R^2	β	p
HS	.32	.23	.03
FS	.13	.16	.17
MEM	.34	.01	.93

Figure 2



		R^2	β	p
HS	Competence	.28	.15	.15
	Acceptance	.32	.13	.19
FS	Competence	.35	- .13	.18
	Acceptance	.39	- .18	.05
MEM	Competence	.18	-.00	.98
	Acceptance	.18	.03	.77

Figure 3

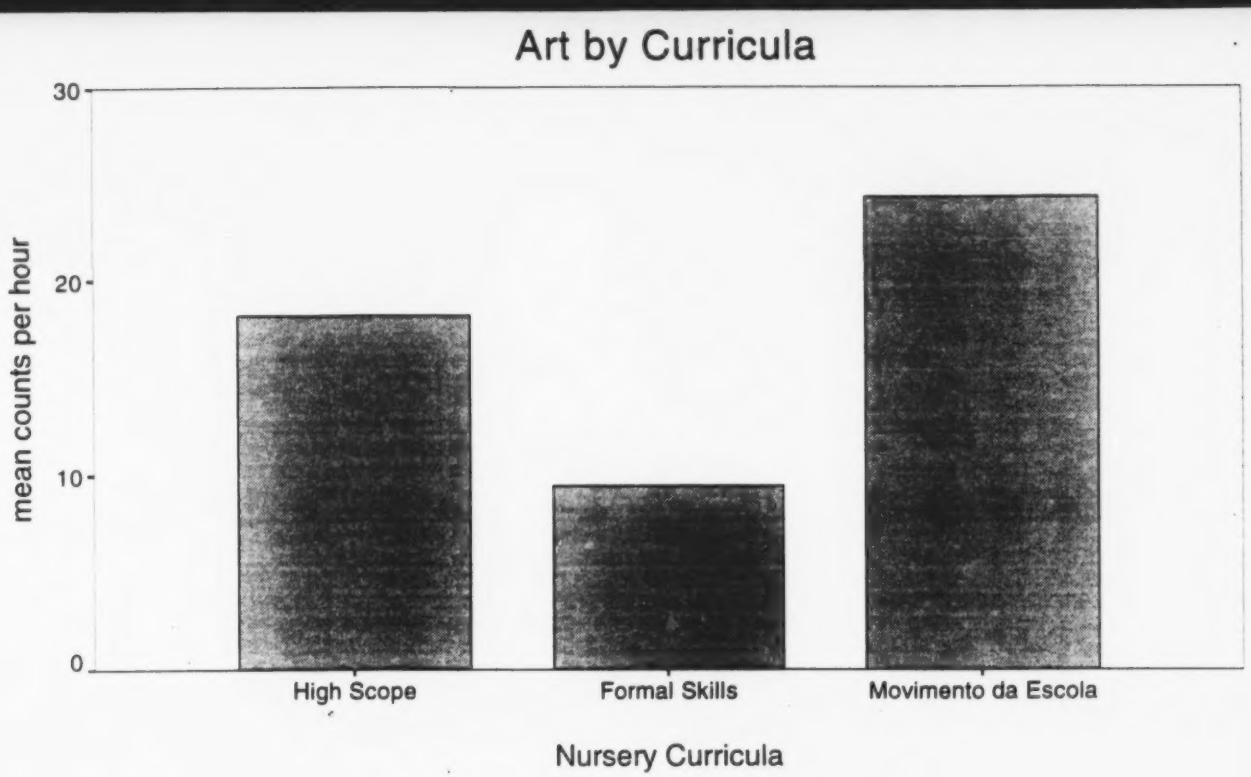


Figure 4

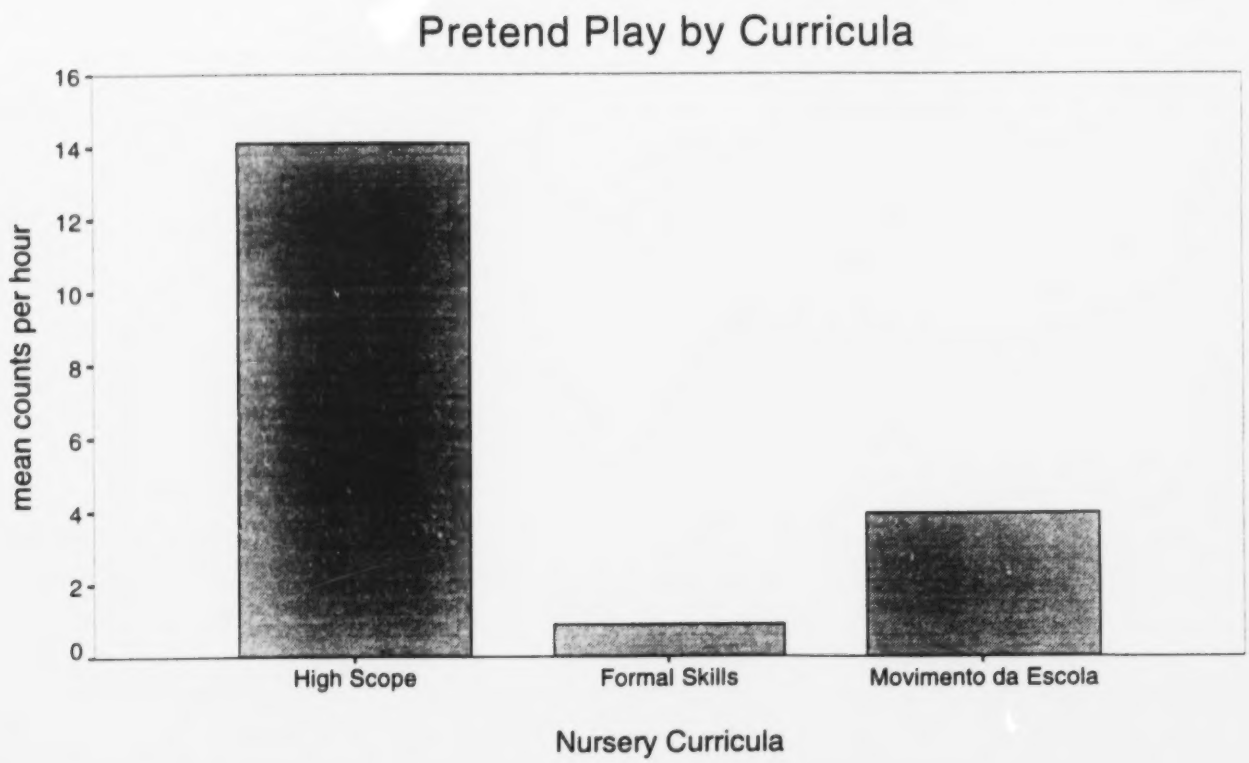


Figure 5

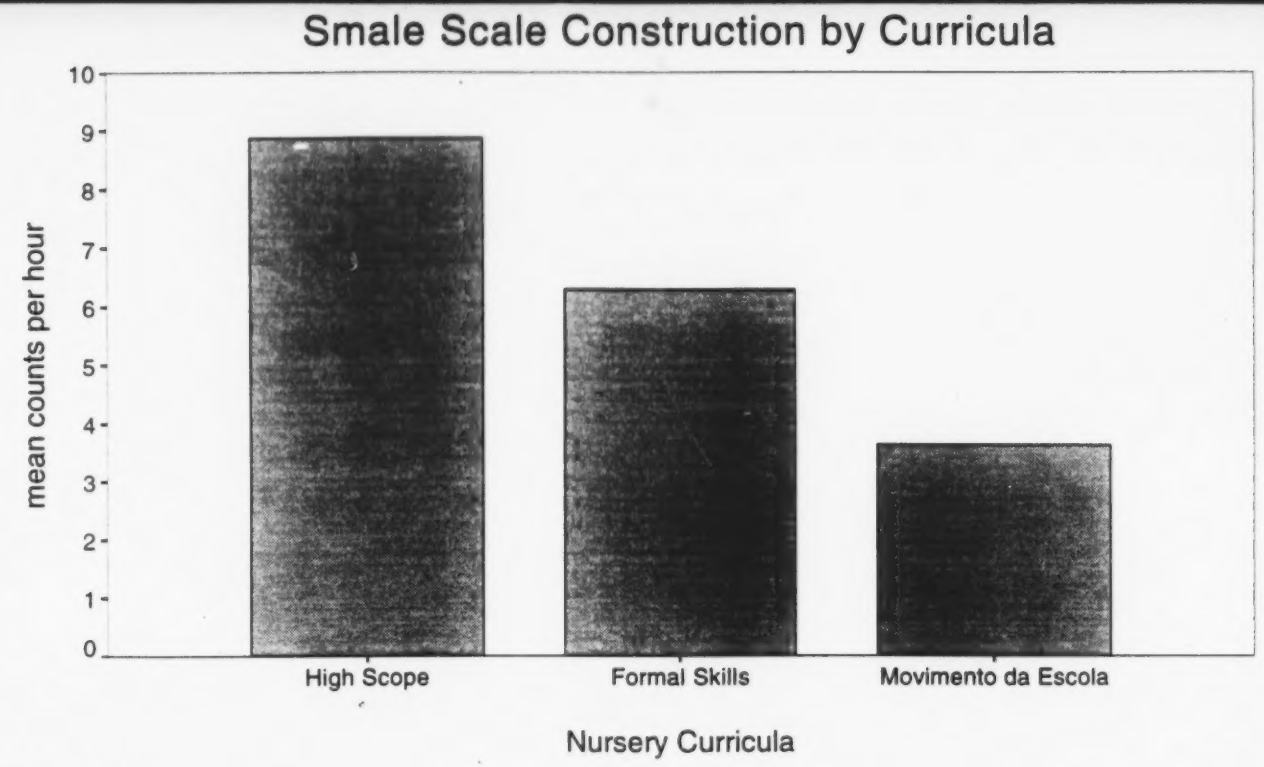


Figure 6

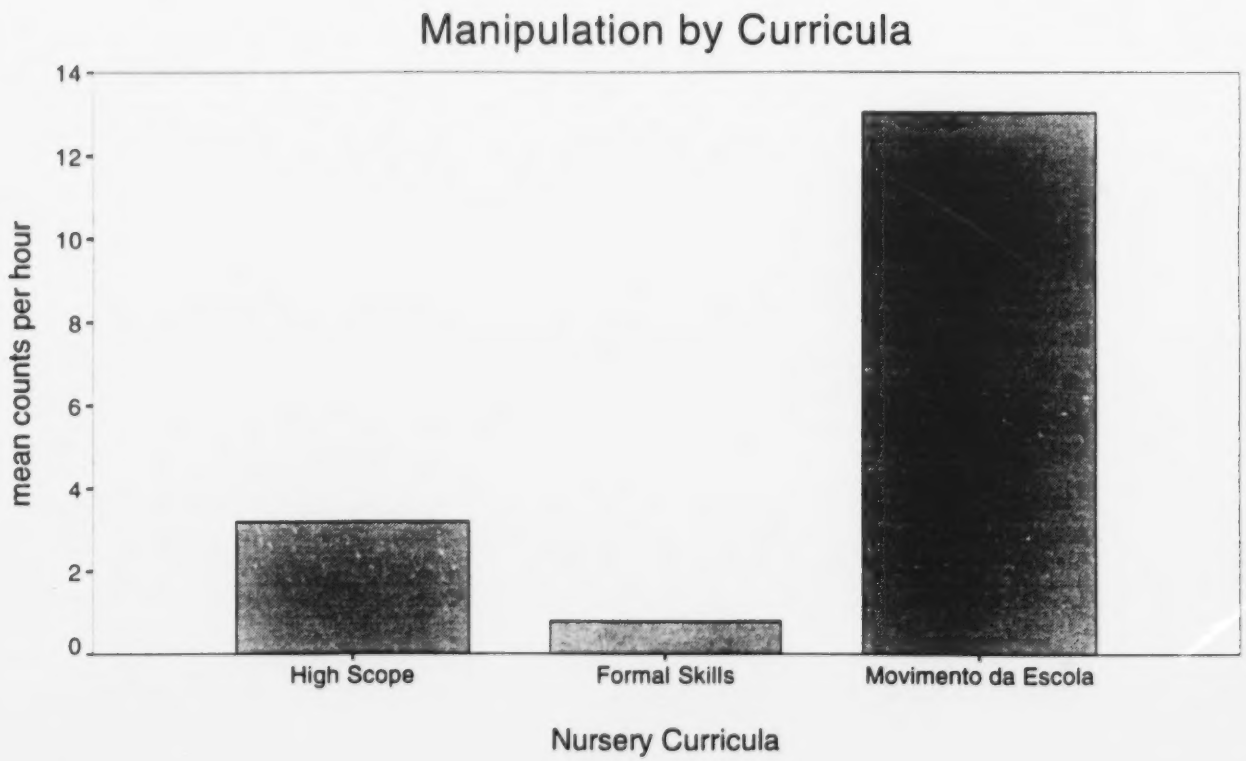


Figure 7

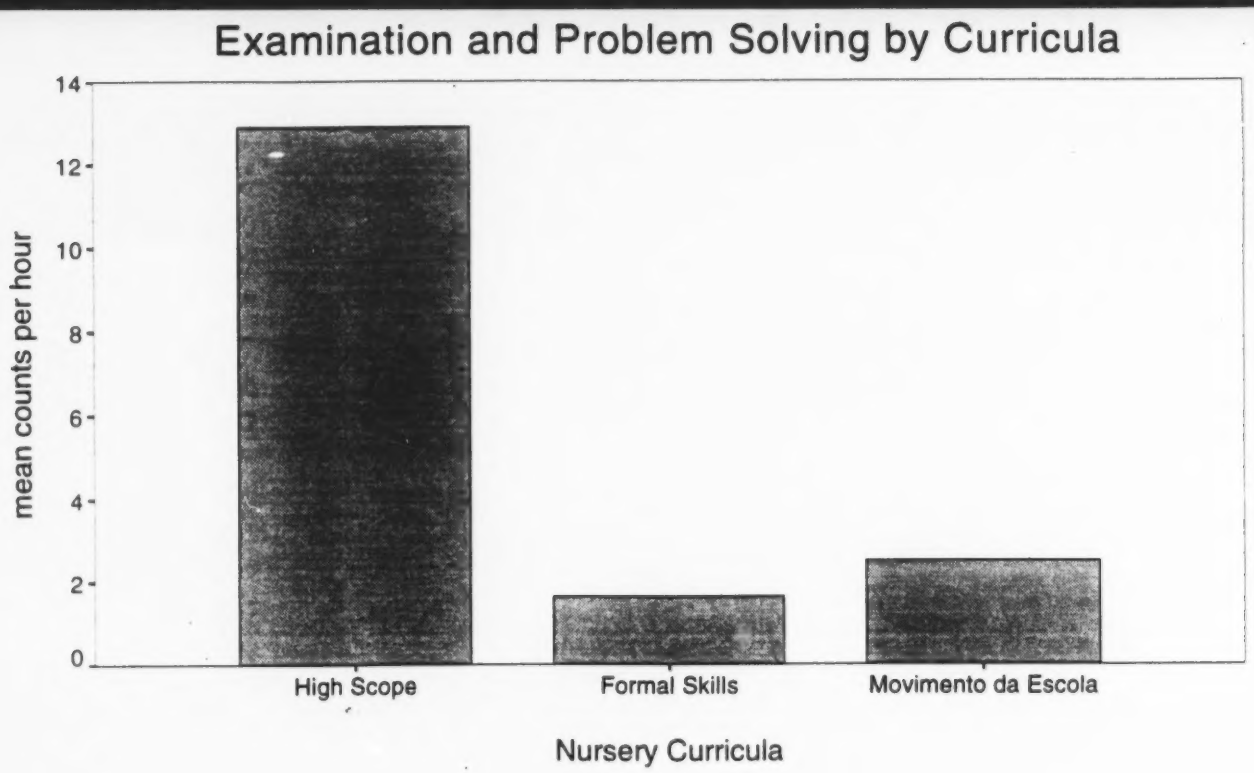


Figure 8

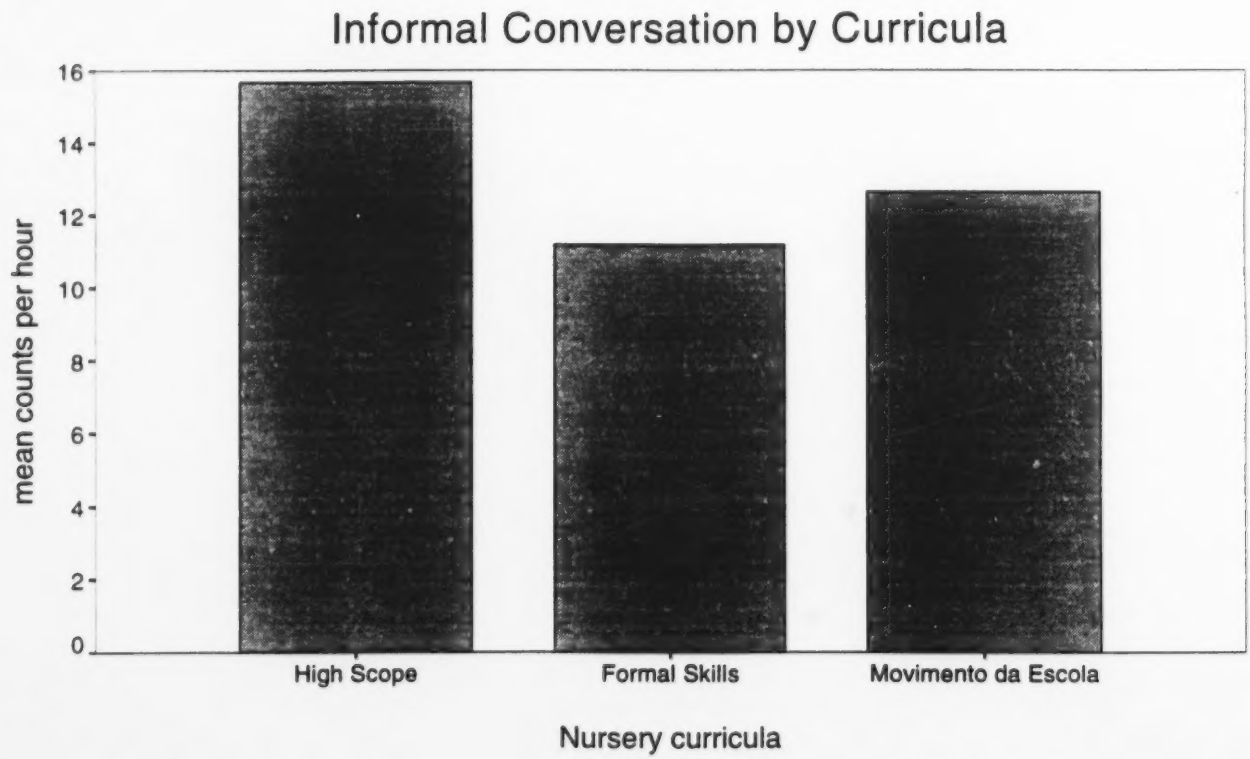


Figure 9

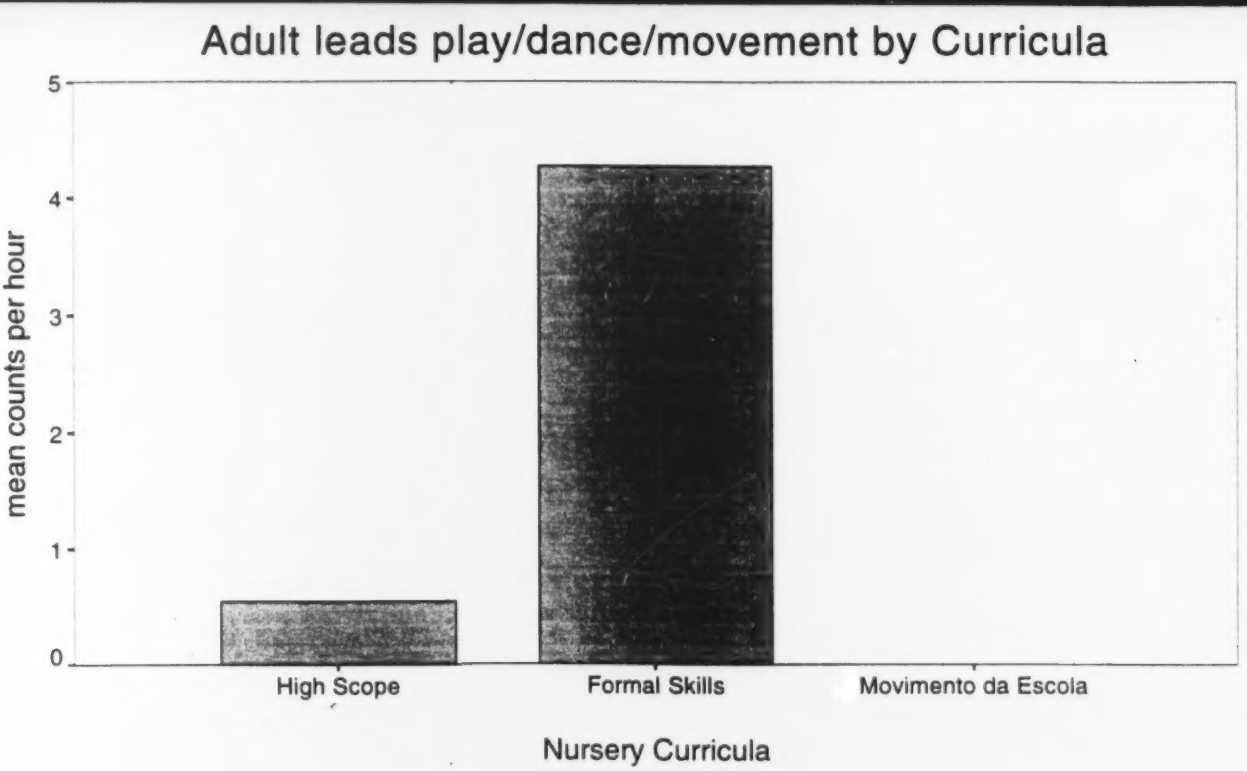


Figure 10

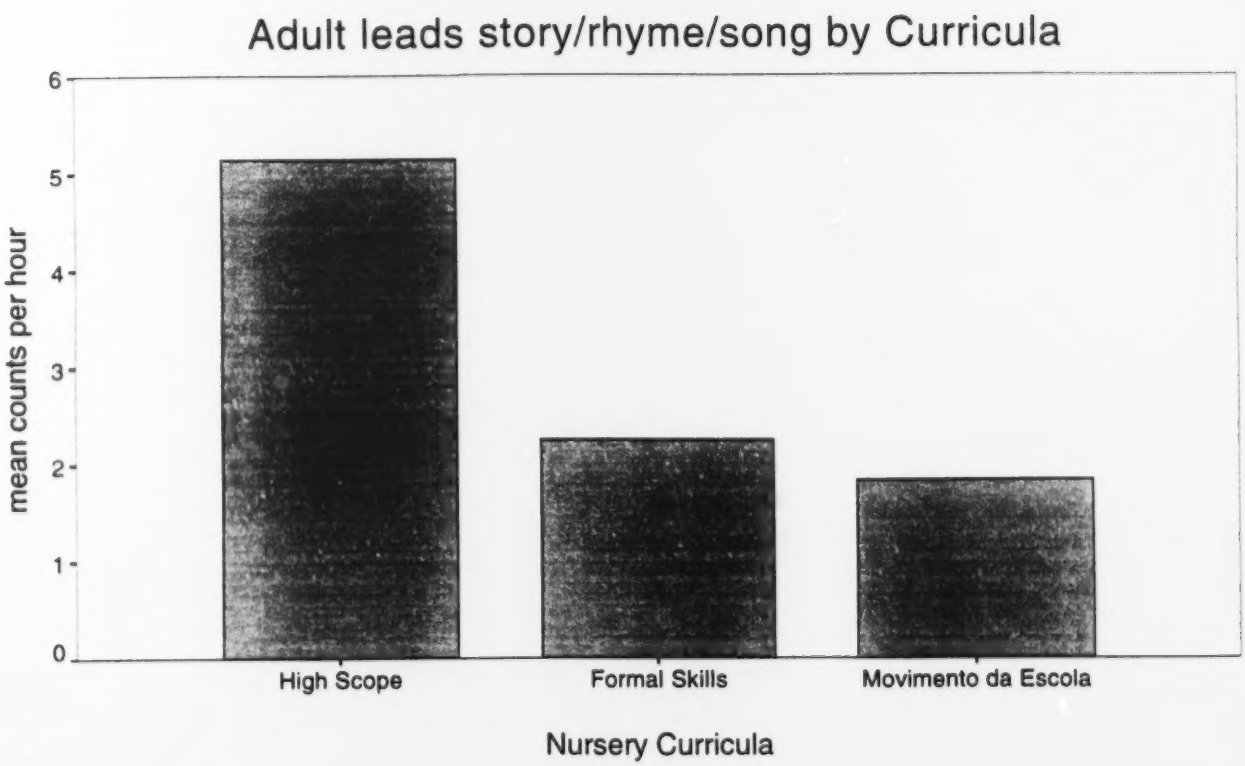


Figure 11

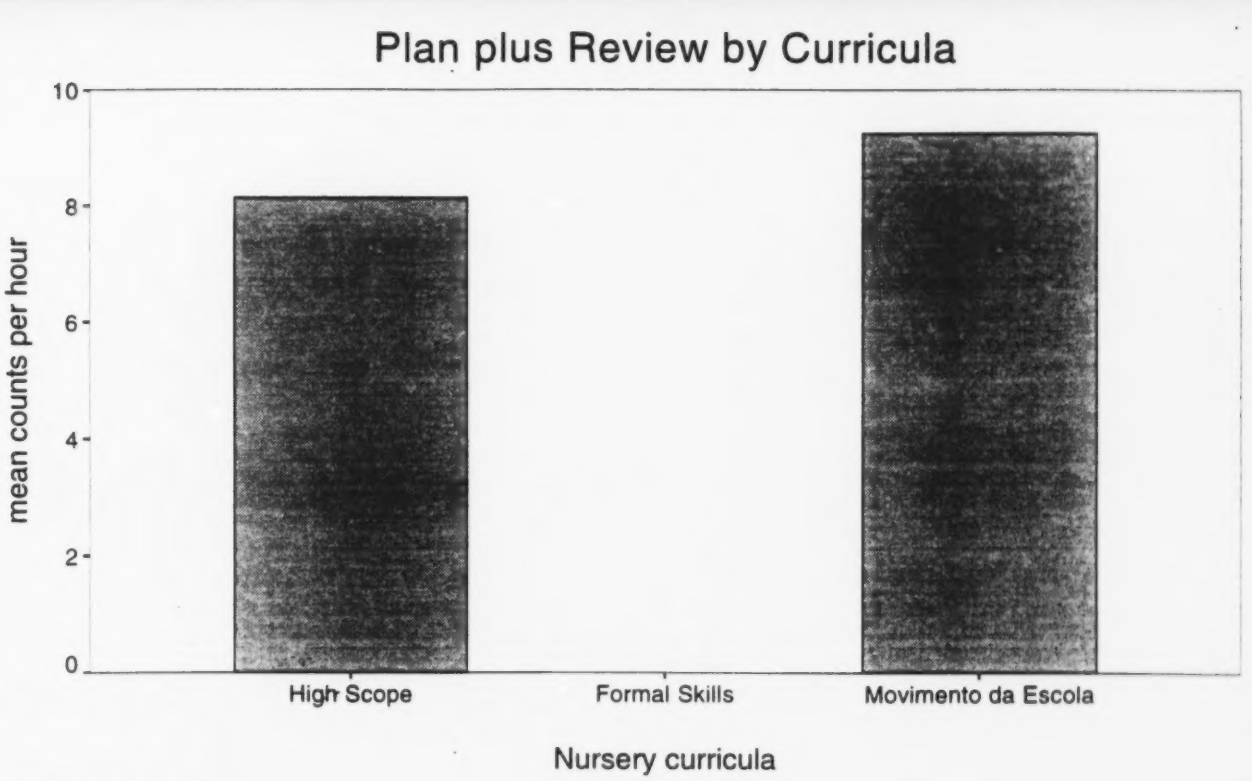
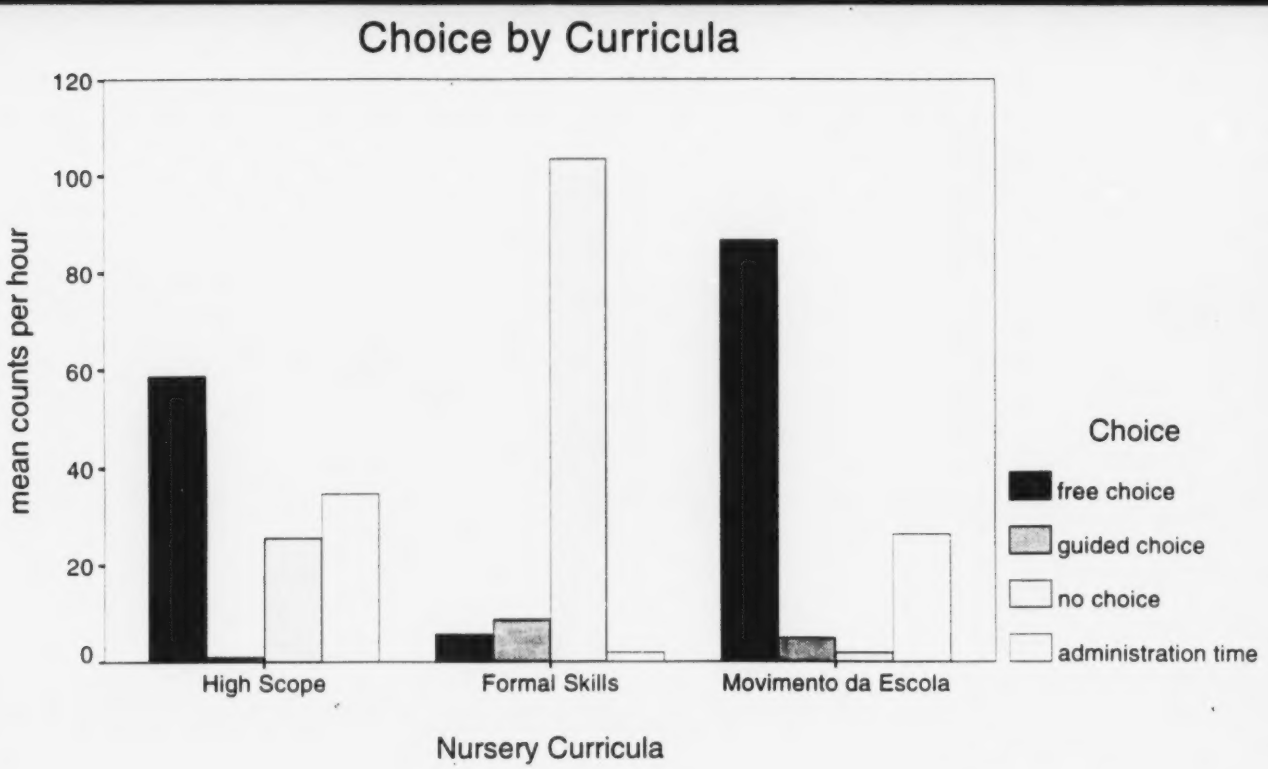
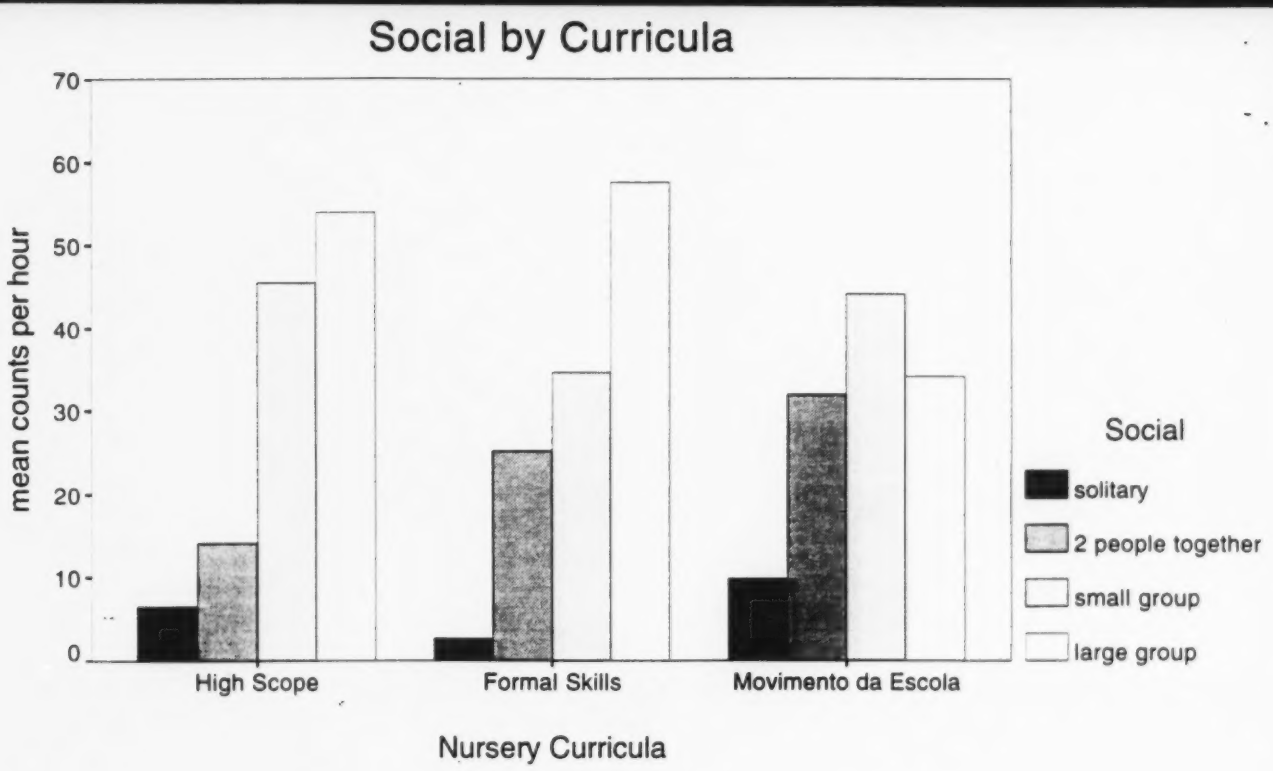

Plan plus Review by Curricula
mean counts per hour
10
8
6
4
2
0
High Scope
Formal Skills
Movimento da Escola
Nursery curricula

Figure 12



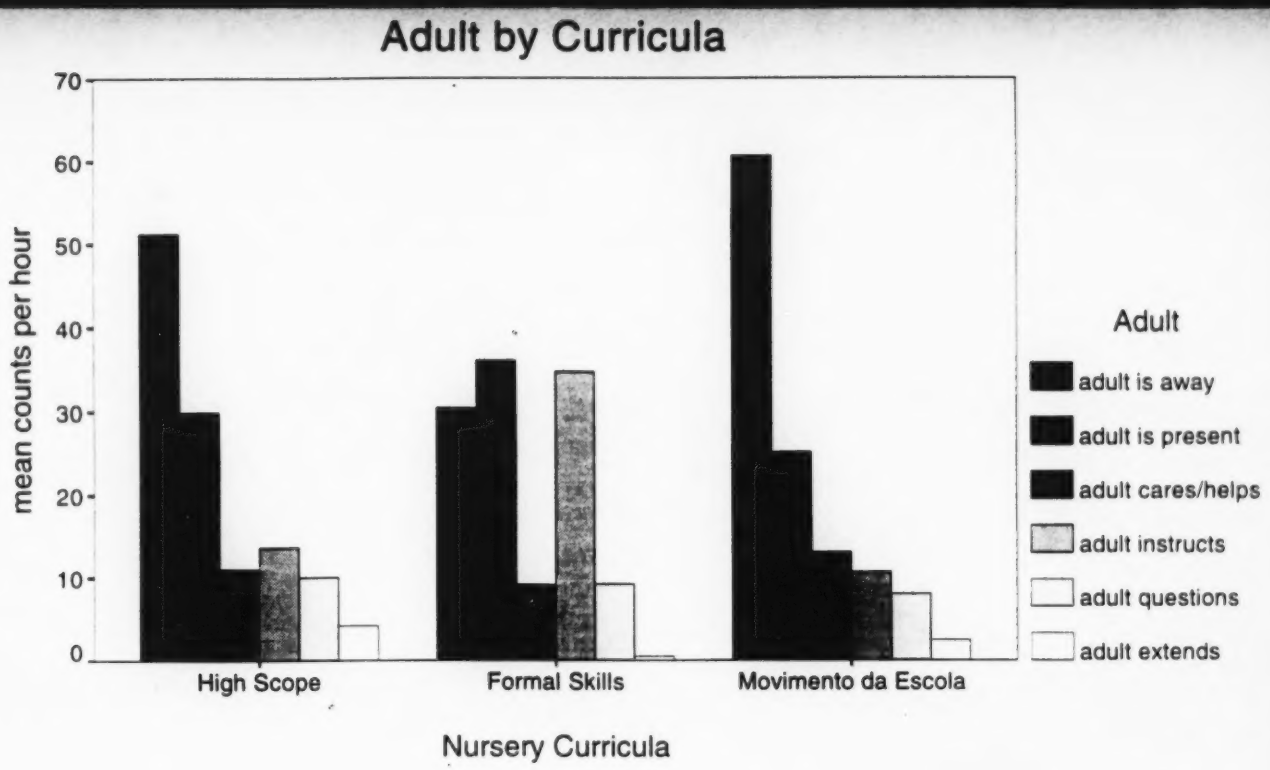
Free choice	.001	MEM highest
Guided choice	ns	
No choice	.001	FS highest
Administration time (routine)	.001	HS + MEM highest

Figure 13



Solitary	.001	MEM highest
Two people together	.007	MEM highest
Small group (3 - 5)	ns	
Large group	.03	FS + HS highest

Figure 14



Adult is away	.001	MEM + HS highest
Adult is present	ns	
Adult care/helps	.05	MEM highest
Adult instructs	.001	FS highest
Adult questions	ns	
Adult extends	.009	HS + MEM highest

Figure 15

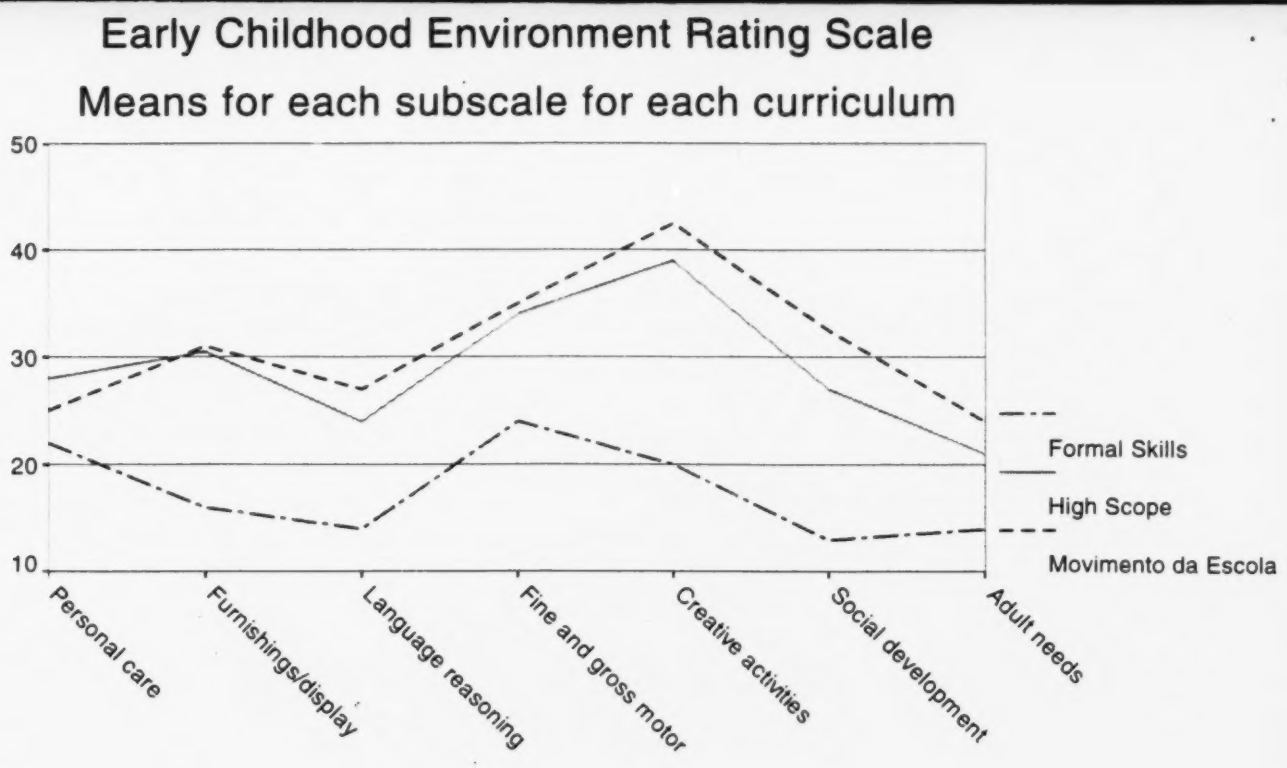

Early Childhood Environment Rating Scale
Means for each subscale for each curriculum
50
40
30
20
10
Personal care
Furnishings/display
Language reasoning
Fine and gross motor
Creative activities
Social development
Adult needs
Formal Skills
High Scope
Movimento da Escola

Figure 16